

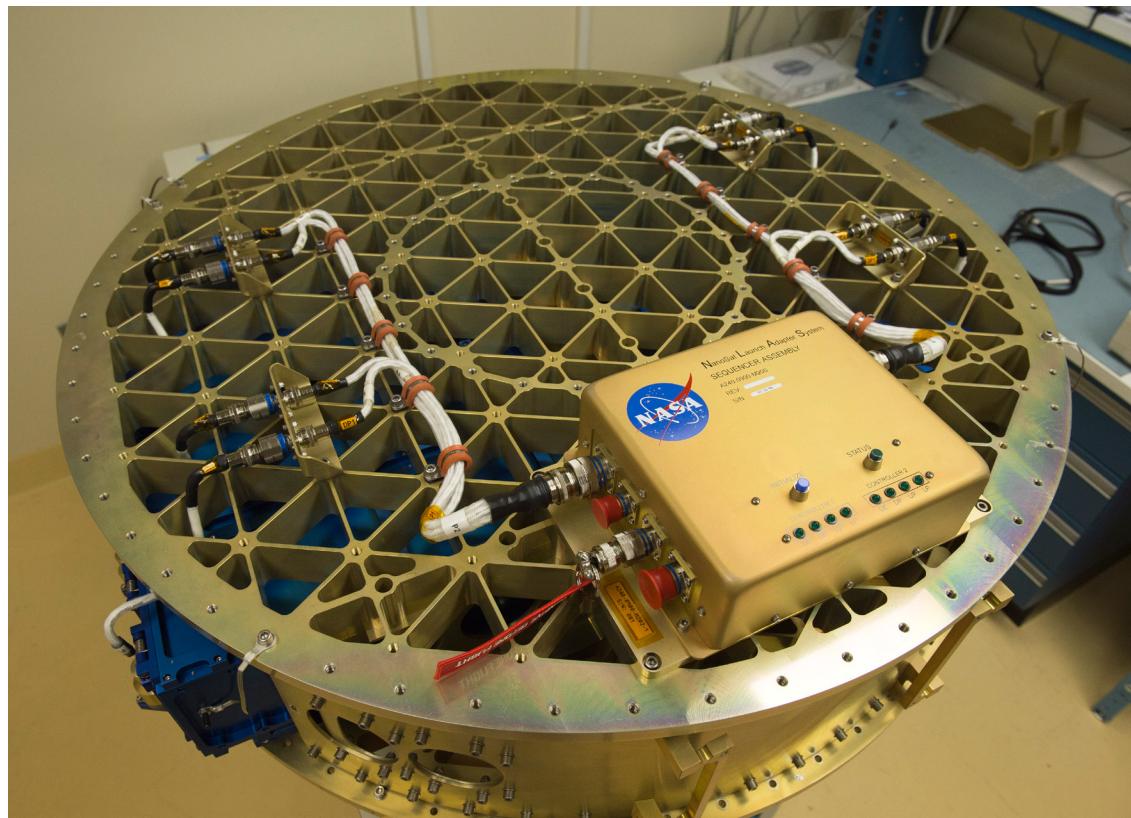


Nanosatellite Launch Adapter System (NLAS)

The Nanosatellite Launch Adapter System (NLAS) was developed to increase access to space while simplifying the integration process of miniature satellites, called nanosats or CubeSats, onto launch vehicles. A standard CubeSat measures about 10 cm square, and is referred to as a 1-unit (1U) CubeSat. A single NLAS provides the capability to deploy 24U of CubeSats. The system is designed to accommodate satellites measuring 1U, 1.5U, 2U, 3U and 6U sizes for deployment into orbit. The NLAS may be configured for use on

different launch vehicles. The system also enables flight demonstrations of new technologies in the space environment.

NLAS consists of an Adapter, four Dispensers and a Sequencer. The Adapter is mounted to the upper surface of the launch vehicle and the lower deck of the primary mission spacecraft. The Dispensers are mounted inside the Adapter and house a variety of CubeSats in fully enclosed bays. They are reconfigurable and can contain either two 3U bays, or a single 6U bay.



The NLAS Sequencer is located on the upper deck of the Adapter and can be side-mounted to accommodate additional NLAS systems or a larger primary spacecraft. The Sequencer allows mission designers to schedule the sequence of nanosatellite deployments.

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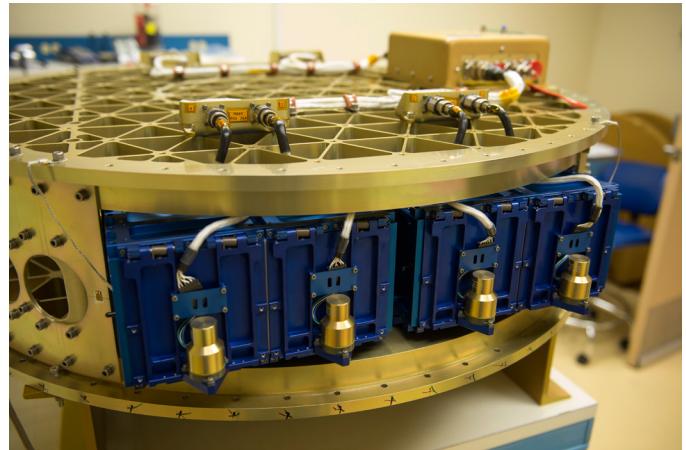
Each Dispenser can accommodate a total payload weight of up to 30 pounds (14 kg). To increase the number of secondary payloads, multiple NLAS can be stacked on the launch vehicle.

The Sequencer is a self-powered reprogrammable unit that signals the separation of each dispenser bay, or other deployment mechanisms. It also can trigger a second Sequencer in a daisy chain arrangement. The Sequencer has built-in redundancy, error checking and noise rejection. It is programmed using ground support equipment (GSE) and a simple graphical user interface (GUI) on a computer.

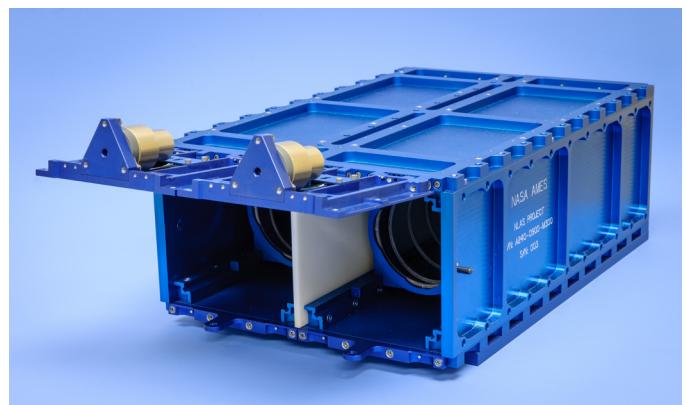
NLAS builds upon past mission successes and technologies developed at NASA Ames Research Center, Moffett Field, California. NLAS is used by NASA, other government agencies and commercial entities. NLAS Dispensers and Sequencers flew in November of 2013 successfully commanding the deployment of 26 CubeSats. NLAS is slated for flight in late 2015.



Sequencers are programmed during integration and testing.



Dispensers are mounted inside the Adapter during integration and testing.



The NLAS Dispenser can accommodate a variety of nanosatellites or CubeSats including 1U, 1.5U, 2U, 3U and 6U CubeSat form factors. A single NLAS Dispenser can deploy secondary payloads up to 26 pounds (12 kg) in 3U configuration and 30 pounds (14kg) in 6U configuration.

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